

Danaisak Yenjai 2007: Effect of Supplementing Organic Acid in Drinking Water on Production Performance, Physiological Properties and Fecal Microbial Contamination of Broiler Chickens. Master of Science (Animal Production), Major Field: Animal Production, Department of Animal Science. Thesis Advisor: Associate Professor Kanchana Markvichitr, Dr.Med.Vet. 82 pages.

Two experimental studies were aimed to evaluate the effect of supplementing organic acid in drinking water in 486 male broiler chickens. These studies were a completely randomized design of treatments. First experiment was carried out to investigate the effect of organic acid on production performance, physiological properties and fecal microbial contamination. Four hundred and fifty nine broilers were divided into 3 groups, 9 replication with 17 broilers/replication in each group. A total 3 treatments of drinking water was performed; T1: control (without organic acid) T2: organic acid 0.1% and 0.2% at 0-15 and 16-42 days of age, respectively; T3: organic acid 0.2% and 0.4% at 0-15 and 16-42 days of age, respectively. The results indicated that the T3 had lower feed intake, water intake and weight gain compared to the control group ( $p<0.05$ ). Feed conversion ratio and carcass were not significantly different among treatments ( $p>0.05$ ). There were not effect of supplementing organic acid upon pH-changes in digestive tract. However, litter moisture of T3 at 42 days was significant decreased ( $p<0.05$ ) compared to the control group. The result of fecal microbial contamination showed that *E.coli* populations of T3 at 42 days was highly significant decreased ( $p<0.01$ ) compared to the control group, whereas *Salmonella* spp. was not found at 42 days. In the second experiment, the aim was to investigate the effect of organic acid on calcium and phosphorus utilization and pH in fecal. Chicks were raised in metabolic cage during 14-21 days. Twenty seven broilers were divided into 3 groups, 9 replication with 1 broiler/replication in each group. A total 3 treatments of drinking water was performed; T1: control (without organic acid) T2: organic acid 0.1%; T3: organic acid 0.4%. The result showed that pH in fecal and mineral (Ca and P) utilization were not significantly different among treatments.

---

Student's signature

---

Thesis Advisor's signature